

Improving Nutria Trapping Success

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ABSTRACT: Nutria are large semi-aquatic, herbivorous rodents native to South America, but were brought to the United States in the early 1900s for the fur farming industry. At high densities, nutria damage marsh vegetation. To more effectively manage nutria, we identified effective attractants and designed a multiple capture trap (MCT). Four lures (nutria urine, nutria fur extract, synthetic anal gland secretion, and a commercially available apple-based lure) were examined under field conditions, using leg-hold traps. A total of 285 nutria were captured during a 10-day trial with 1,000 trap-nights. All lures tested increased trapping success from 42% to 120% over untreated traps, with nutria fur extract being the most effective. Additionally, the lures did not attract non-target animals. Next, we tested the MCT: 6 were baited with foods (carrots, corn, and sweet potatoes), and another 6 used trays of fertilized marsh plants as the lure. During the 10-day trial, with 122 trap-nights, 10 nutria were caught in the food-baited traps and 12 in the marsh plant-baited traps. As many as 3 nutria were captured overnight in one trap. On two occasions, individual nutria escaped the traps when approached by a person. No non-target animals were captured, however, it was suspected that swamp rabbits were entering the MCTs to feed and then were able to go back out the “one-way door”.

KEY WORDS: attractant, control, invasive species, lures, Louisiana, multiple capture trap, *Myocastor coypus*, nutria, trapping

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INTRODUCTION

Nutria (*Myocastor coypus*) are large semi-aquatic rodents native to South America and were first introduced to the United States in 1899 to establish a fur farm in California. This initial introduction failed due to lack of reproductive success (Ashbrook 1948). During the 1930s, nutria were imported for fur farms in Louisiana, Ohio, New Mexico, Washington, Michigan, Oregon, and Utah (Kinler et al. 1987). Since then, accidental and intentional releases have permitted nutria to become established in wetlands in at least 16 states, as well as 3 Canadian provinces and northern Mexico (Carter and Leonard 2002, Scarborough and Mouton 2007).

Nutria are an important resource for the Louisiana fur industry. In 1976, the sale of nutria pelts alone generated \$15.7 million for Louisiana's coastal trappers (Scarborough and Mouton 2007). Since then, however, the market for furs has decreased dramatically, and today most of the nutria harvest is done as part of an incentive payment program, where trappers can receive \$5.00 for each nutria tail submitted. During the 2006-2007 trapping season, 375,683 nutria tails were turned in to the program, which resulted in \$1,878,415 in incentive payments being made to participating trappers (Scarborough and Mouton 2007). Despite this economic advantage, nutria can be detrimental to the native ecosystem of an area as well as to local agriculture. Burrowing and foraging by nutria often inflict severe damage and can be devastating to native vegetation and crops (LeBlanc 1994). Nutria are also recognized as being at least a contributing factor to the decline of native Louisiana coastal marsh (Grace and Ford 1996, Evers et al. 1998). In many areas of Louisiana, marsh restoration efforts are underway, but these efforts are hindered in areas where nutria populations are not reduced (Greg Linscombe, Louisiana Dept. of Wildlife and Fisheries, pers. commun.; Marx et al. 2004). Marsh plants are raised and nourished in plant nurseries for out-planting at

restoration sites but are subject to severe damage by nutria, which can hinder or prevent restoration (Mike Materne, Louisiana State Univ., pers. commun.).

Management plans to control nutria impacts typically involve population reduction or local eradication (Gosling and Baker 1989). At present, public hunting and trapping, encouraged by an incentive payment program, are the primary approaches used to reduce overabundant populations. Two methods that could aid in nutria management are attractants used to increase trapping success and multiple capture traps (MCT). Effective attractants would enhance efficacy of live traps, kill traps, and toxic baiting stations. Attractants could increase numbers of nutria visiting bait stations and traps and reduce time required for bait stations and traps to be operational, thereby reducing non-target exposure. Identified attractants may also prove useful for other approaches, such as shooting or for possible use in multiple capture traps, which would allow for multiple individuals to be captured simultaneously. Traditional control methods have involved either single set leg-hold traps or shooting of individual nutria. Both methods are fairly labor intensive per nutria collected. An effective multiple capture trap could reduce the amount of effort required to capture multiple animals. A MCT might also eliminate the need for daily monitoring of traps. This study evaluated one possible design in two different configurations, and using two different types of bait for use as a nutria multiple capture trap.

METHODS

Attractants

In an earlier study conducted by Jojola et al. (2006), 14 different potential olfactory lures, as well as male and female nutria urine, were evaluated for their attractiveness to nutria in a captive setting using wild-caught nutria. The 4 lures that appeared to be the most attractive to the captive nutria were selected to be tested in the field.

Those lures were a synthetic formulation of a male nutria's anal gland secretion, female nutria fur extract, female nutria urine, and Tom's Nutria #1 lure, which is a commercially available apple-based lure (Finckbeiner 2005).

This trial was conducted in cooperation with a commercial trapping operation being carried out on and near the Mandalay National Wildlife Refuge, located in Terrebonne Parish, in southeast Louisiana. All traps were supplied by the trapper, and all nutria captured remained the property of the trapper.

The potential lures that were identified in the earlier pen study were applied to the leg-hold traps being used by the commercial trapping operation to test for improved trap efficacy (capture rates). The lures were applied by spraying or pouring a small amount a short distance (about 0.25 m) behind the trap, which was usually placed near a nutria runway through the marsh or levee. Traps were never placed directly in a nutria trail, which would be the normal placement. This was done to test the luring power of the tested attractants. Otherwise, nutria would be accidentally captured while simply traveling down the trail. Traps were re-treated every other day with the appropriate lure.

A total of 100 No. 1.5 leg-hold traps were used for this study, traps were placed both in marsh type habitats and on nearby levees. Treatments were randomly assigned to traps and 20 traps received each treatment. A fifth group of 20 traps were placed in the control group and received no lure, but were monitored as per the treated traps. Each trap used in the study was at least 10 m from any other trap. Trapping was conducted for a total of 10 nights; traps were run for 5 consecutive nights in one area (Area 1), and then moved to new locations (Area 2) and run for 5 more nights. Trap lines were set up and maintained as closely as possible to the normal routine of a commercial trapping operation.

Beginning the day after treatment, the traps were monitored daily as part of the commercial trapping activities. Any captures were recorded by date, trap number, and treatment. The sex and weight of each nutria captured was recorded. The trap was then re-set and re-treated with the appropriate lure. All nutria found in traps were euthanized via an approved method. All sprung traps were also re-set and re-treated with the appropriate lure. Any non-target captures were also recorded. If possible, non-target animals captured were immediately released on-site. If release was not possible and the animal was still alive, the non-target animals were also euthanized by an approved method. The commercial trapper then disposed of the carcasses in a manner approved of by the state (usually by burial on site, or by removal to process fur and/or meat).

Multiple Capture Traps

Two different versions of a prototype multiple capture trap (MCT) for nutria were also tested on the Mandalay NWR during early January 2007. The MCTs were constructed from 1-inch (2.5-cm) PVC pipe and galvanized welded wire fencing. The traps were completely enclosed, both top and bottom. The first version of the MCT tested was the single unit trap, which

was 4 ft by 4 ft (1.2 m by 1.2 m) square with a one-way door on one side that would allow nutria to enter the trap but not exit. These traps were baited with foodstuffs such as sweet potatoes, feed corn, and carrots. The vegetables were cut into sections to increase the amount of odor released, in order to try to draw nutria in from a further distance. The feed corn was placed in an aluminum tray to prevent it from becoming water logged. The bait for the single unit trap was placed so that nutria would be able to access and consume the bait. Six traps in this configuration were tested. The second configuration tested was made up of 2 of the above-described units placed back-to-back. Between these 2 traps was a protected area where trays of fertilized marsh plants were placed that served to lure nutria into the traps (Jojola et al. 2006). This area was protected with welded wire fencing attached to a PVC frame, similar in construction to the traps themselves. Six traps in this configuration were also set out and tested.

Traps were placed both on levees and on floating marsh habitats. All traps were monitored daily, and any nutria captured were removed from the traps. All nutria captured were removed from the trap via an animal catch pole and then euthanized. All captures were recorded by date, trap number, and treatment. Trapping was conducted for 10 consecutive nights. After 5 nights, 3 plant-baited and 3 food-baited traps were moved to new locations. The traps that were moved were traps that were not catching nutria and did not appear to be in areas with good numbers of nutria.

RESULTS

Attractants

A total of 285 nutria were captured during the study. One-hundred fifty-seven nutria were captured in Area 1, and 128 were captured in Area 2. A nutria was considered to be captured even if it had escaped from the trap, but it was confirmed to have been in the trap because of fur or other sign. For example if a toenail or body hair or whisker that could be positively identified as nutria was found in the trap, the nutria was counted as captured, but escaped. Two-hundred four nutria were actually captured, with 81 nutria escaping from the traps. Escaped animals were counted as captures for all data tabulations.

All lures tested in this study increased trapping success over untreated traps by at least 42% with some lures increasing it by as much as 120%. Control traps with no lure applied to them captured 35 nutria in 200 trap-nights. Of the lures tested, the nutria fur extract proved to be the most effective at increasing trapping success. A total of 77 nutria were captured in 200 trap-nights by the traps with the fur extract applied to them (2.2 times more than control traps). The next most appealing lure was the nutria urine, which captured 66 nutria in 200 trap-nights (1.9 times more than control traps). Next was the commercially available apple-based lure, which captured 57 nutria in 200 trap-nights (1.6 times more than control). Finally, the least attractive of the lures tested was the synthetic anal gland secretion, which captured only 50 nutria in 200 trap-nights (1.4 times more than control).

For most lures evaluated, marsh type habitats proved

to be more productive than the levees for trapping nutria. The one exception was the nutria fur extract, which caught more nutria on the levee sets. During this study, a total of 125 nutria were captured by the traps set on the levees, while 159 were captured in the marsh.

A total of only 15 non-target animals were captured during the entire trapping effort of 1,000 trap-nights. Six wading birds, 5 swamp rabbits (*Sylvilagus aquaticus*), 2 alligators (*Alligator mississippiensis*), 1 red-tailed hawk (*Buteo jamaicensis*) and 1 raccoon (*Procyon lotor*) were captured. Several of the wading birds and both of the alligators were immediately released on-site. As per nutria captures, more non-target animals were captured in marsh trap sets (n=10) than in levee trap sets (n=5). Non-target animals were captured in traps scented with all attractants as well as untreated (control) traps.

Multiple Capture Traps

A total of 22 nutria were captured during the trial. Ten were caught in the food-baited traps, and 12 were captured in the marsh plant-baited traps. Seven females and 3 males were captured in the food-baited traps, while 4 females, 7 males, and 1 individual of unknown sex were captured in the plant-baited traps.

As many as 3 nutria were captured simultaneously in one trap. This occurred in one of the fertilized marsh plant-baited traps. On 2 other occasions, 2 nutria were caught in the same trap overnight. Both of these double captures occurred in food-baited traps.

No non-target animals were ever captured in any of the traps; however, during a preliminary trial in April 2006, 3 alligators 1.2 m or less in length, were found in the traps. All 3 alligators were able to be released unharmed. It was also suspected that during the 2007 trial, swamp rabbits were entering the food-baited traps, consuming the bait and then exiting the traps. On several occasions, empty traps were found with all the food bait removed. Swamp rabbits were often found within several meters of these traps. However, this could have also been caused by nutria entering the traps, consuming the bait, and then escaping. More research, possibly using cameras at each of the trap sites monitoring all activity at the trap would need to be conducted to make that determination. Small birds were also observed consuming the feed corn bait in the traps; they were able to freely move in and out of the traps through the welded wire mesh.

On two different occasions, nutria were able to escape from the trap when it was approached by humans. Both animals were shot after they escaped, as they were running away. A 3.0-kg nutria was able to escape out the one-way door of the trap, while a 2.0-kg nutria was able to escape through the welded wire fencing.

DISCUSSION

Both the use of olfactory attractants and multiple capture traps show great potential to improve management techniques for nutria. The addition of attractants to leg-hold trap sets could allow for traps to be in place for shorter periods of time, which would both reduce the amount of effort required by the trapper per nutria collected, but it should also decrease the risk to non-target

species. Attractants might also help capture nutria when populations are at very low densities, which would be of great help when local eradication of nutria is the goal of managers.

Multiple capture traps could also be an asset to nutria managers and researchers in certain situations. One advantage of these traps was that they allowed for the capture of nutria without causing any damage to the animal. This fact might make the use of traps of this type the preferred method of collecting nutria for research purposes. To further assess the potential of these techniques to improve nutria trapping, research should be conducted comparing these tools to traditional control techniques, with an attempt to quantify the amount of effort required for each nutria captured.

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LITERATURE CITED

- ASHBROOK, F. G. 1948. Nutrias grow in United States. *J. Wildl. Manage.* 12(1):87-95.
- CARTER, J., and B. P. LEONARD. 2002. A review of the literature on the worldwide distribution, spread of, and efforts to eradicate the coypu (*Myocastor coypus*). *Wildl. Soc. Bull.* 30(1):162-175.
- EVERS, D. E., C. E. SASSER, J. G. GOSSELINK, D. A. FULLER, and J. M. VISSER. 1998. The impact of vertebrate herbivores on wetland vegetation in Atchafalaya Bay, Louisiana, USA. *Estuaries* 21:1-13.
- FINCKBEINER, S. M. 2005. Partial characterization of coypu scent gland compounds and a new technique for computer-aided photographic identification of individual coypu. M.S. thesis, Cornell University, Ithaca, NY.
- GOSLING, L. M., and S. J. BAKER. 1989. The eradication of muskrats and coypus from Britain. *Bio. J. Linnean Soc.* 38: 39-51.
- GRACE, J. B., and M. A. FORD. 1996. The potential impact of herbivores on the susceptibility of the marsh plant *Sagittaria*

- lancifolia* to saltwater intrusion in coastal wetlands. *Estuaries* 19:13-20.
- JOJOLA, S., G. WITMER, and D. NOLTE. 2006. Managing invasive nutria: The role of olfactory cues. *Proc. Vertebr. Pest Conf.* 22:192-194.
- KINLER, N. W., G. LINScombe, and P. R. RAMSEY. 1987. Nutria. Pp. 327-342 *in*: M. Novak, J. A. Baker, M. E. Obbard, and B. Malloch (Eds.), *Wild Furbearer Management and Conservation in North America*. Ministry of Natural Resources, Ontario, Canada.
- LEBLANC, D. J. 1994. Nutria. Pp. B71-B80 *in*: S. E. Hygnstrom, R. M. Timm, and G. E. Larson (Eds.), *Prevention and Control of Wildlife Damage*. Cooperative Extension Division, Institute of Agriculture and Natural Resources, University of Nebraska; Gt. Plains Agricultural Council and USDA APHIS Animal Damage Control. Lincoln, NE.
- MARX, J., E. MOUTON, and G. LINScombe. 2004. Nutria harvest distribution 2003-04 and a survey of nutria herbivory damage in coastal Louisiana in 2004. Unpubl. report, Coastwide Nutria Control Program, CWPPRA Project LA-03b. Louisiana Dept. of Wildlife and Fisheries, New Iberia, LA.
- SCARBOROUGH, J., and E. MOUTON. 2007. Nutria harvest distribution 2006-2007 and a survey of nutria herbivory damage in coastal Louisiana in 2007. *Fur and Refuge Division*, Louisiana Department of Wildlife and Fisheries, New Iberia, LA.